

What is claimed is:

1. A rare earth doped fiber coil, said rare earth doped fiber coil comprising:
a rare earth doped optical fiber having a rare-earth doped core surrounded by a cladding
with outer clad diameter of less than 100 μm , said rare earth doped optical fiber having a length
of 10 m to 50m and being coiled with a bend radius of less than 40mm.
2. The rare earth doped fiber coil according to claim 1, wherein said clad diameter is in the
range of 70 μm to 95 μm .
3. The rare earth doped fiber coil according to claim 1, wherein said clad diameter is in the
range of 72 μm to 90 μm
4. The rare earth doped fiber coil according to claim 1, wherein said clad diameter is in the
range of 75 μm to 85 μm .
5. The rare earth doped fiber coil according to claim 1, wherein said rare earth doped optical
fiber is an Er doped optical fiber.
6. The rare earth doped fiber coil according to claim 5, wherein said bend radius is between
8mm and 35mm
7. The rare earth doped fiber coil according to claim 5, wherein said bend radius is between
8mm and 20mm.
8. The rare earth doped fiber coil according to claim 5, wherein said bend radius is between
10mm and 15mm.

9. The rare earth doped fiber coil according to claim 1, wherein said bend radius is between 8mm and 20mm.

10. The rare earth doped fiber coil according to claim 1, wherein said bend radius is between 10mm and 15mm.

11. An optical amplifier comprising: a length of rare earth doped amplifying fiber, said amplifying fiber having a rare-earth doped core surrounded by a cladding with outer clad diameter of less than 100 μm , said rare earth doped optical fiber having a length of 10 m to 50m and being coiled with a bend radius of less than 40mm.

12. The optical amplifier according to claim 10, wherein said rare earth doped optical fiber is an Er doped optical fiber.

13. The optical amplifier according to claim 10, wherein said bend radius is between 8mm and 20mm.

14. The optical amplifier according to claim 10 wherein said clad diameter is between 70 μm and 95 μm .

15. The optical amplifier according to claim 10 wherein said outer clad diameter is between 72 μm and 90 μm .

16. The optical amplifier according to claim 10 wherein said outer clad diameter is between 75 μm and 85 μm .